REMARKS

Claims 1 through 32 are pending in the Application.

Claim Rejections under 35 U.S.C. §103

The Office Action issued a final rejection of claims 1-3, 5, 7-9, 11-12, 14-17, 19-22, 24-26 and 28 through 31 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,122,514 to Spaur et al. (the Spaur reference) in view of US Patent No. 6,832,087 to Gwon, et al. (the Gwon reference). Applicants respectfully traverse this rejection because neither the Spaur reference nor the Gwon reference, either alone or in combination, disclose or suggest the requirements of the claims.

Independent Claim 1 and Dependent Claims 2 through 7

Neither the Spaur reference nor the Gwon reference disclose or suggest the requirements, *inter alia*, of claim 1 of, "when the Internet packet is being received when the channel scan request is received, scanning at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tuning to the one of the plurality of channels to transmit at least one outbound Internet packet; and scanning at least another channel of the plurality of channels."

As stated in paragraphs 9-11 of the specification, the present application discloses a problem with a wireless transceiver. The wireless transceiver (e.g., the client station) is required to occasionally scan the available channels to see whether there are other nodes with which to communicate (i.e., other channels are supporting data of interest to the wireless communication device). Because of the nature of wireless networks, the scanning process requires that the station to temporarily leave the channel that is supporting a current communication by tuning and listening to one or more different channels to determine if there is any interest in association with one of these other channels. A significant period of time is required to make such a determination for each channel. In many wireless local area networks (WLAN), multiple frequencies and/or network interface protocols may be used (e.g., IEEE 802.11b, IEEE 802.11a, and/or IEEE 802.11g protocols), which increases the number of channels that must be scanned and correspondingly increases the time it takes to scan all of the channels. While the time it takes

to scan multiple channels over multiple network interface protocols, the data throughput performance impact on the station is modest. However, the data throughput for higher layer protocols, such as Transmission Control Protocol/Internet Protocol (TCP/IP) may be significantly impacted. Such a significant impact results because TCP/IP measures the time that expires from when a source sends a packet to a destination until the source receives an acknowledgement (ACK) from the destination that it received the packet. If the time is greater than expected (e.g., a few hundred milliseconds plus some tolerance that accounts for reasonable transmission time variations), TCP/IP may interpret this as congestion (i.e., the network infrastructure is overworked and is slow in transferring packets). When congestion is suspected, TCP/IP uses a multiplicative decrease congestion avoidance algorithm that dramatically reduces the transmission rate of packets from the source to the destination. When the congestion is reduced, TCP/IP uses a slow start algorithm that slowly increases the packet rate between the source and the destination. If the station is scanning other channels for a significant period of time (e.g., a few hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the multiplicative decrease congestion avoidance algorithm. As such, the TCP/IP throughput is unnecessarily reduced.

The embodiment of the invention in claim 1 solves this problem by receiving a scan channel request of a plurality of channels that are in accordance with the network interface protocol. For example, the channels may be in accordance with IEEE 802.11a, IEEE 802.11b, and/or IEEE 802.11g or other protocol. The method then continues by determining whether an Internet packet is being received via one of the plurality of channels when the channel scan request is received (i.e., is a higher layer protocol supporting a current transmission). If so, the method continues by scanning at least one channel of the plurality of channels, but does not scan all of the plurality of channels at one time. The method continues after the scanning by tuning to the channel supporting the higher layer protocol communication to transmit at least one outbound Internet packet. The method then continues by scanning at least another channel of the plurality of channels.

With respect to the Spaur reference, the Office Action first cites Figure 5A, items 170 through 182 and column 13, line 67 through column 14, line 3 as disclosing requirements of

claim 1. However, the Office Action has incorrectly interpreted the Spaur reference. The Spaur reference with respect to Figure 5A, Items 170 through 182 at column 13, lines 8 through 16 states that:

> At step 170, a decision is made as to whether or not the particular information transfer is to be started immediately. If this decision is in the affirmative, the link selector 64 takes control to initiate the transfer using one or more selected network channels 34a-34n at step 174. If the decision is in the negative, the information to be transferred is buffered and the link scheduler 70 obtains the current location of the mobile unit having the communications system 10 at step 178. The link scheduler 70 then determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit at step 182. The anticipated channels that are becoming available and their availability time is then provided, at step 186, to the link selector 64 for determining each of their suitability values.

Thus, the Spaur reference discloses only determining whether to initiate transfer on one or more selected network channels or determining an identity of other network channels based on location of the mobile unit to transfer the particular information. This disclosure teaches away from the embodiment of claim 1. The embodiment of claim 1 is not scanning to determine a new channel to transmit a packet on which it has received a packet. As stated in claim 1, "when the Internet packet is being received via one of the plurality of channels when the channel scan request is received, scanning at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tuning to the one of the plurality of channels to transmit at least one outbound Internet packet; and scanning at least another channel of the plurality of channels."

The Office Action also cites column 13, line 67 through column 14, line 3 as disclosing requirements of claim 1. Again, this Office Action has incorrectly taken a small portion of the Spaur reference out of context and misinterpreted it. At column 13, lines 43 through column 14, line 3, the Spaur reference states:

As part of the operational steps involving the link scheduler 70, a determination is made as to whether or not a currently utilized network channel might be unavailable or go off line before completion of the particular information transfer. In accordance with this function, at step 218, the current location of the mobile unit having the communications system 10 is obtained. At step 222, a determination is made as to when the currently utilized network channel will go off line. This determination uses the current location of the mobile unit and the anticipated change in position of the mobile unit using velocity information and/or route or schedule information that the mobile unit follows. . . . This information can be combined with location-related information regarding the next location node and the estimated time to travel to it. From this data, the link scheduler 70 can be used in determining that a particular channel will go off line, as well as network channels that will become available. After this determination is made, the link scheduler 70, at step 226, informs the link selector 64 of the date and time when the currently utilized network channel will go off line. The link selector 64 is able to use this information in controlling the switching from the currently used network channel to a new or different selected channel.

Nowhere does the Spaur reference discuss a request for scanning channels or how scanning of the channels is performed when receiving an Internet packet on a channel. Thus, the Spaur reference fails to disclose the requirements, *inter alia*, of claim 1 of, "when the Internet packet is being received when the channel scan request is received, scanning at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tuning to the one of the plurality of channels to transmit at least one outbound Internet packet; and scanning at least another channel of the plurality of channels."

The Gwon reference also fails to disclose or suggest the requirements, *inter alia*, of claim 1 of, "when the Internet packet is being received when the channel scan request is received, scanning at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tuning to the one of the plurality of channels to transmit at least one outbound Internet packet; and scanning at least another channel

of the plurality of channels." The Gwon reference describes a procedure for minimizing the handoff latency resulting from standard Mobile IP handoff procedures, as stated at column 2, lines 36 through 39. As stated, at column 1, lines 35 through 47, two types of handoffs, L2 and L3 are described:

> "A handoff occurs when a MN moves from one radio AP to another. A mere change of radio AP is called a "Layer 2 (L2) handoff," which does not involve any Layer 3 (L3) signaling at the IP level. If the new radio access point is associated with a new subnet, i.e., if the MN moves from one subnet to another, a changing in routing reachability occurs and requires Layer 3 (L3) protocol action. This L3 protocol action is called a "L3 handoff" and usually involves exchange of a series of IP messages that are used to update routing information for the MN to make sure that data destined to the MN is routed through the new subnet to the MN."

The Gwon reference describes that in order to prevent L3 handoff latency, a pre-registration handoff method allows the L3 handoff to begin even before the L2 handoff begins, as stated at column 2, lines 57 through 65. As stated in column 4, lines 13 through 35, IP tunnels are established between a source node and a set of candidate nodes. The tunnels are used to forward data to the mobile node after a communication link between the mobile node and the source node goes down. Once a target node is identified from the candidate nodes, using the tunnel from the source node to the target node, the mobile node keeps IP data communication with the source node after the L2 handoff but before the L3 handoff. Again at column 9, lines 35 through 51 cited in the Office Action, the Gwon reference states that:

> With the tunnel that remains up [between the old FA (oFA) and new FA (nFA)], the MN can receive data from the oFA while on the nFA's subnet. Thus, the tunnel between oFA and nFA allows the MN to continue using the oFA for data communication while on the nFA's subnet. . . . The MN must eventually perform a formal Mobile IP registration illustrated in FIG. 1 after an L2 link with the nFA is established, but this can be delayed as required by the MN. Until the MN

performs registration, a new FA and an old FA will setup and move a tunnel as required to give MN continued connectivity.

Thus, the Gwon reference merely discloses tunneling to a MN from an old FA while on a new FA subnet before a form Mobile IP registration by the MN. The Gwon reference nowhere describes when the Internet packet is being received when the channel scan request is received, scanning at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tuning to the one of the plurality of channels to transmit at least one outbound Internet packet; and scanning at least another channel of the plurality of channels. As such, the Gwon reference fails to disclose the requirements of claim 1.

The combination of the references also fails to suggest the requirements of claim 1. As explained above, both the Spaur reference and the Gwon reference merely disclose handoff procedures and fail to even disclose the requirements of claim 1 as explained above. In addition, there is no suggestion to revise the references to meet the requirements of claim 1 because neither reference discloses or realizes the problems addressed by the embodiments of the present invention that if a station is scanning other channels for a significant period of time (e.g., a few hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the multiplicative decrease congestion avoidance algorithm. As such, the combination of the reference fails to suggest the requirements, *inter alia*, of claim 1 of, "when the Internet packet is being received when the channel scan request is received, scanning at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tuning to the one of the plurality of channels to transmit at least one outbound Internet packet; and scanning at least another channel of the plurality of channels."

The dependent claims 2 through 7 add further patentable matter to Claim 1 and thus are further differentiated and patentable under 35 U.S.C. §103 over the Spaur reference in view of the Gwon reference.

Independent Claim 8 and Dependent Claims 9 through 13

Neither the Spaur reference nor the Gwon reference disclose or suggest the requirements, *inter alia*, of claim 8 of, "when the network interface protocol channel scan request is received,

hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a packet formatted in accordance with the Internet Protocol or a portion of the packet during scanning of the other channels of the WLAN. "

With respect to the Spaur reference and claim 8, the Office Action cites on pages 9 and 10 of the Office action, Figure 5A, items 170 through 182 and column 13, line 67 through column 14, line 3, as disclosing requirements of claim 8. However, the Office Action has incorrectly interpreted the Spaur reference. The Spaur reference with respect to Figure 5A, Items 170 through 182 at column 13, lines 8 through 16 states that:

> At step 170, a decision is made as to whether or not the particular information transfer is to be started immediately. If this decision is in the affirmative, the link selector 64 takes control to initiate the transfer using one or more selected network channels 34a-34n at step 174. If the decision is in the negative, the information to be transferred is buffered and the link scheduler 70 obtains the current location of the mobile unit having the communications system 10 at step 178. The link scheduler 70 then determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit at step 182. The anticipated channels that are becoming available and their availability time is then provided, at step 186, to the link selector 64 for determining each of their suitability values.

The Spaur reference discloses that no transfer of information occurs until the link scheduler 70 determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit, at column 13, lines 8 through 16. Thus, the Spaur reference discloses only determining whether to initiate transfer on one or more selected network channels or determining an identity of other network channels based on location of the mobile unit to transfer the particular information. This aspect of the Spaur reference actually teaches away from the embodiment in claim 8 of, "when the network interface protocol channel scan request is received, hopping

between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a packet formatted in accordance with the Internet Protocol or a portion of the packet during scanning of the other channels of the WLAN. " The Office Action also cites column 13, line 67 through column 14, line 3 as disclosing requirements of claim 8. Again, this Office Action has incorrectly taken a small portion of the Spaur reference out of context and misinterpreted the Spaur reference. At column 13, lines 43 through column 14, line 3, the Spaur reference states:

> As part of the operational steps involving the link scheduler 70, a determination is made as to whether or not a currently utilized network channel might be unavailable or go off line before completion of the particular information transfer. In accordance with this function, at step 218, the current location of the mobile unit having the communications system 10 is obtained. At step 222, a determination is made as to when the currently utilized network channel will go off line. This determination uses the current location of the mobile unit and the anticipated change in position of the mobile unit using velocity information and/or route or schedule information that the mobile unit follows. . . . This information can be combined with location-related information regarding the next location node and the estimated time to travel to it. From this data, the link scheduler 70 can be used in determining that a particular channel will go off line, as well as network channels that will become available. After this determination is made, the link scheduler 70, at step 226, informs the link selector 64 of the date and time when the currently utilized network channel will go off line. The link selector 64 is able to use this information in controlling the switching from the currently used network channel to a new or different selected channel.

Thus, the Spaur reference nowhere discloses how scanning of other channels is performed or hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency. Thus, the Spaur reference fails to disclose the requirements, inter alia, of claim 8 of, "hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels

of the WLAN to avoid excess latency in acknowledging receipt of a packet formatted in accordance with the Internet Protocol or a portion of the packet during scanning of the other channels of the WLAN."

The Gwon reference also fails to disclose or suggest the requirements, *inter alia*, of claim 8 of, "hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a packet formatted in accordance with the Internet Protocol or a portion of the packet during scanning of the other channels of the WLAN." The Gwon reference describes a procedure for minimizing the handoff latency resulting from standard Mobile IP handoff procedures, as stated at column 2, lines 36 through 39. The Gwon reference describes that in order to prevent L3 handoff latency, a pre-registration handoff method allows the L3 handoff to begin even before the L2 handoff begins, as stated at column 2, lines 57 through 65. As stated in column 4, lines 13 through 35, IP tunnels are established between a source node and a set of candidate nodes. The tunnels are used to forward data to the mobile node after a communication link between the mobile node and the source node goes down. Once a target node is identified from the candidate nodes, using the tunnel from the source node to the target node, the mobile node keeps IP data communication with the source node after the L2 handoff but before the L3 handoff. Again at column 9, lines 35 through 51, the Gwon reference explains that:

> With the tunnel that remains up [between the old FA (oFA) and new FA (nFA)], the MN can receive data from the oFA while on the nFA's subnet. Thus, the tunnel between oFA and nFA allows the MN to continue using the oFA for data communication while on the nFA's subnet. . . . The MN must eventually perform a formal Mobile IP registration illustrated in FIG. 1 after an L2 link with the nFA is established, but this can be delayed as required by the MN. Until the MN performs registration, a new FA and an old FA will setup and move a tunnel as required to give MN continued connectivity.

Thus, the Gwon reference merely discloses tunneling to a MN from an old FA while on a new FA subnet before a form Mobile IP registration by the MN. As such, the Gwon reference fails to disclose the requirements, *inter alia*, of claim 8 of, "hopping between a channel supporting the

TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a packet formatted in accordance with the Internet Protocol or a portion of the packet during scanning of the other channels of the WLAN."

The combination of the references also fails to suggest the requirements of claim 8. As explained above, both the Spaur reference and the Gwon reference merely disclose handoff procedures and fail to even disclose the requirements of claim 8 as explained above. In addition, there is no suggestion to revise the references to meet the requirements of claim 8 because neither reference discloses or realizes the problems addressed by the embodiments of the present invention that if a station is scanning other channels for a significant period of time (e.g., a few hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the multiplicative decrease congestion avoidance algorithm. As such, the combination of the reference fails to suggest the requirements, *inter alia*, of claim 8 of, "hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a packet formatted in accordance with the Internet Protocol or a portion of the packet during scanning of the other channels of the WLAN."

The dependent claims 9 through 13 add further patentable matter to Claim 8 and thus are further differentiated and patentable under 35 U.S.C. §103 over the Spaur reference in view of the Gwon reference.

Independent Claim 14 and Dependent Claims 15 through 19

Neither the Spaur reference nor the Gwon reference disclose or suggest the requirements, *inter alia*, of claim 14 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

With respect to the Spaur reference, the Office Action on page 15 cites Figure 5A, items 170 through 182 and column 13, line 67 through column 14, line 3 of the Spaur reference as

disclosing requirements of claim 14. However, the Office Action has incorrectly interpreted the Spaur reference. The Spaur reference with respect to Figure 5A, Items 170 through 182 at column 13, lines 8 through 16 states that:

> At step 170, a decision is made as to whether or not the particular information transfer is to be started immediately. If this decision is in the affirmative, the link selector 64 takes control to initiate the transfer using one or more selected network channels 34a-34n at step 174. If the decision is in the negative, the information to be transferred is buffered and the link scheduler 70 obtains the current location of the mobile unit having the communications system 10 at step 178. The link scheduler 70 then determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit at step 182. The anticipated channels that are becoming available and their availability time is then provided, at step 186, to the link selector 64 for determining each of their suitability values.

The Spaur reference discloses that no transfer of information occurs until the link scheduler 70 determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit, at column 13, lines 8 through 16. Thus, the Spaur reference discloses only determining whether to initiate transfer on one or more selected network channels or determining an identity of other network channels based on location of the mobile unit to transfer the particular information. This aspect of the Spaur reference actually teaches away from claim 14, of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

The Office Action also cites column 13, line 67 through column 14, line 3 as disclosing requirements of claim 14. Again, this Office Action has incorrectly taken a small portion of the Spaur reference out of context and misinterpreted the Spaur reference. At column 13, lines 43 through column 14, line 3, the Spaur reference states:

> As part of the operational steps involving the link scheduler 70, a determination is made as to whether or not a currently utilized network channel might be unavailable or go off line before completion of the particular information transfer. In accordance with this function, at step 218, the current location of the mobile unit having the communications system 10 is obtained. At step 222, a determination is made as to when the currently utilized network channel will go off line. This determination uses the current location of the mobile unit and the anticipated change in position of the mobile unit using velocity information and/or route or schedule information that the mobile unit follows. . . . This information can be combined with location-related information regarding the next location node and the estimated time to travel to it. From this data, the link scheduler 70 can be used in determining that a particular channel will go off line, as well as network channels that will become available. After this determination is made, the link scheduler 70, at step 226, informs the link selector 64 of the date and time when the currently utilized network channel will go off line. The link selector 64 is able to use this information in controlling the switching from the currently used network channel to a new or different selected channel.

Thus, the Spaur reference nowhere even discloses a request for scanning or how scanning of the channels is performed. Thus, the Spaur reference fails to disclose the requirements, *inter alia*, of claim 14 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

The Gwon reference also fails to disclose or suggest the requirements, *inter alia*, of claim 14 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels." The Gwon reference describes a procedure for minimizing the handoff latency resulting from standard Mobile IP handoff procedures, as stated at column 2, lines 36 through 39. The Gwon reference describes that in order to prevent L3 handoff latency, a pre-registration handoff method allows the L3 handoff to begin even before the L2 handoff begins, as stated at column 2, lines 57 through 65. As stated in column 4, lines 13 through 35, IP tunnels are established between a source node and a set of candidate nodes. The tunnels are used to forward data to the mobile node after a communication link between the mobile node and the source node goes down. Once a target node is identified from the candidate nodes, using the tunnel from the source node to the target node, the mobile node keeps IP data communication with the source node after the L2 handoff but before the L3 handoff. Again at column 9, lines 35 through 51, the Gwon reference states that:

> With the tunnel that remains up [between the old FA (oFA) and new FA (nFA)],
> the MN can receive data from the oFA while on the nFA's subnet. Thus, the
> tunnel between oFA and nFA allows the MN to continue using the oFA for data
> communication while on the nFA's subnet. . . . The MN must eventually perform
> a formal Mobile IP registration illustrated in FIG. 1 after an L2 link with the nFA
> is established, but this can be delayed as required by the MN. Until the MN
> performs registration, a new FA and an old FA will setup and move a tunnel as
> required to give MN continued connectivity.

Thus, the Gwon reference merely discloses tunneling to a MN from an old FA while on a new FA subnet before a form Mobile IP registration by the MN. As such, the Gwon reference fails to disclose the requirements, *inter alia*, of claim 14 of, "memory operably coupled to the processing

module, wherein the memory stores operational instructions that cause the processing module to:

. . . when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

The combination of the references also fails to suggest the requirements of claim 14. There is no suggestion to revise the references to meet the requirements of claim 14 because neither reference discloses or realizes the problems addressed by the embodiments of the present invention that if a station is scanning other channels for a significant period of time (e.g., a few hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the multiplicative decrease congestion avoidance algorithm. As such, the combination of the reference fails to suggest the requirements, *inter alia*, of claim 14 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

The dependent claims 15 through 19 add further patentable matter to Claim 14 and thus are further differentiated and patentable under 35 U.S.C. §103 over the Spaur reference in view of the Gwon reference.

Independent Claim 20 and Dependent Claims 21 through 23

Neither the Spaur reference nor the Gwon reference disclose or suggest the requirements, *inter alia*, of claim 20 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the network interface protocol channel scan request is received, hop between a channel supporting the TCP connection within the WLAN a wireless local area network (WLAN) and other channels

of the WLAN to avoid excess latency in acknowledging receipt of a datagram of the at least one datagrams or a portion of the datagram during scanning of the other channels of the WLAN."

With respect to the Spaur reference, the Office Action cites on pages 19 and 20 of the Office action, Figure 5A, items 170 through 182 and column 13, line 67 through column 14, line 3, as disclosing requirements of claim 20. However, the Office Action has incorrectly interpreted the Spaur reference. The Spaur reference with respect to Figure 5A, Items 170 through 182 at column 13, lines 8 through 16 states that:

> At step 170, a decision is made as to whether or not the particular information transfer is to be started immediately. If this decision is in the affirmative, the link selector 64 takes control to initiate the transfer using one or more selected network channels 34a-34n at step 174. If the decision is in the negative, the information to be transferred is buffered and the link scheduler 70 obtains the current location of the mobile unit having the communications system 10 at step 178. The link scheduler 70 then determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit at step 182. The anticipated channels that are becoming available and their availability time is then provided, at step 186, to the link selector 64 for determining each of their suitability values.

The Spaur reference discloses that no transfer of information occurs until the link scheduler 70 determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit, at column 13, lines 8 through 16. Thus, the Spaur reference discloses only determining whether to initiate transfer on one or more selected network channels or determining an identity of other network channels based on location of the mobile unit to transfer the particular information. This aspect of the Spaur reference actually teaches away from the embodiment in claim 20 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the network interface protocol channel scan request is received, hop between a channel supporting the TCP connection

within the WLAN a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a datagram of the at least one datagrams or a portion of the datagram during scanning of the other channels of the WLAN." The Office Action also cites column 13, line 67 through column 14, line 3 as disclosing requirements of claim 20. Again, this Office Action has incorrectly taken a small portion of the Spaur reference out of context and misinterpreted the Spaur reference. At column 13, lines 43 through column 14, line 3, the Spaur reference states:

> As part of the operational steps involving the link scheduler 70, a determination is made as to whether or not a currently utilized network channel might be unavailable or go off line before completion of the particular information transfer. In accordance with this function, at step 218, the current location of the mobile unit having the communications system 10 is obtained. At step 222, a determination is made as to when the currently utilized network channel will go off line. This determination uses the current location of the mobile unit and the anticipated change in position of the mobile unit using velocity information and/or route or schedule information that the mobile unit follows. . . . This information can be combined with location-related information regarding the next location node and the estimated time to travel to it. From this data, the link scheduler 70 can be used in determining that a particular channel will go off line, as well as network channels that will become available. After this determination is made, the link scheduler 70, at step 226, informs the link selector 64 of the date and time when the currently utilized network channel will go off line. The link selector 64 is able to use this information in controlling the switching from the currently used network channel to a new or different selected channel.

Thus, the Spaur reference nowhere discloses how scanning of other channels is performed or hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency. Thus, the Spaur reference fails to disclose the requirements, *inter alia*, of claim 20 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing

module to: . . . when the network interface protocol channel scan request is received, hop between a channel supporting the TCP connection within the WLAN a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a datagram of the at least one datagrams or a portion of the datagram during scanning of the other channels of the WLAN."

The Gwon reference also fails to disclose or suggest the requirements, *inter alia*, of claim 20 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: . . . when the network interface protocol channel scan request is received, hop between a channel supporting the TCP connection within the WLAN a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a datagram of the at least one datagrams or a portion of the datagram during scanning of the other channels of the WLAN." The Gwon reference describes a procedure for minimizing the handoff latency resulting from standard Mobile IP handoff procedures, as stated at column 2, lines 36 through 39. The Gwon reference describes that in order to prevent L3 handoff latency, a pre-registration handoff method allows the L3 handoff to begin even before the L2 handoff begins, as stated at column 2, lines 57 through 65. As stated in column 4, lines 13 through 35, IP tunnels are established between a source node and a set of candidate nodes. The tunnels are used to forward data to the mobile node after a communication link between the mobile node and the source node goes down. Once a target node is identified from the candidate nodes, using the tunnel from the source node to the target node, the mobile node keeps IP data communication with the source node after the L2 handoff but before the L3 handoff. Again at column 9, lines 35 through 51, the Gwon reference explains that:

> With the tunnel that remains up [between the old FA (oFA) and new FA (nFA)], the MN can receive data from the oFA while on the nFA's subnet. Thus, the tunnel between oFA and nFA allows the MN to continue using the oFA for data communication while on the nFA's subnet. . . . The MN must eventually perform a formal Mobile IP registration illustrated in FIG. 1 after an L2 link with the nFA is established, but this can be delayed as required by the MN. Until the MN

performs registration, a new FA and an old FA will setup and move a tunnel as
required to give MN continued connectivity.

Thus, the Gwon reference merely discloses tunneling to a MN from an old FA while on a new
FA subnet before a form Mobile IP registration by the MN. As such, the Gwon reference fails to
disclose the requirements, *inter alia*, of claim 20 of, "memory operably coupled to the processing
module, wherein the memory stores operational instructions that cause the processing module to:
. . . when the network interface protocol channel scan request is received, hop between a channel
supporting the TCP connection within the WLAN a wireless local area network (WLAN) and
other channels of the WLAN to avoid excess latency in acknowledging receipt of a datagram of
the at least one datagrams or a portion of the datagram during scanning of the other channels of
the WLAN."

The combination of the references also fails to suggest the requirements of claim 20.
There is no suggestion to revise the references to meet the requirements of claim 20 because
neither reference discloses or realizes the problems addressed by the embodiments of the present
invention that if a station is scanning other channels for a significant period of time (e.g., a few
hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the
multiplicative decrease congestion avoidance algorithm. As such, the combination of the
reference fails to suggest the requirements, *inter alia*, of claim 20 of, memory operably coupled
to the processing module, wherein the memory stores operational instructions that cause the
processing module to: . . . when the network interface protocol channel scan request is received,
hop between a channel supporting the TCP connection within the WLAN a wireless local area
network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging
receipt of a datagram of the at least one datagrams or a portion of the datagram during scanning
of the other channels of the WLAN."

The dependent claims 21 through 23 add further patentable matter to Claim 20 and thus
are further differentiated and patentable under 35 U.S.C. §103 over the Spaur reference in view
of the Gwon reference.

Independent Claim 24 and dependent Claims 25 through 28

Neither the Spaur reference nor the Gwon reference disclose or suggest the requirements, *inter alia*, of claim 24 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

With respect to the Spaur reference, as stated above with respect to Independent Claim 14, the Spaur reference discloses that no transfer of information occurs until the link scheduler 70 determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit, at column 13, lines 8 through 16. Thus, the Spaur reference discloses only determining whether to initiate transfer on one or more selected network channels or determining an identity of other network channels based on location of the mobile unit to transfer the particular information. This aspect of the Spaur reference actually teaches away from claim 24. The Spaur reference nowhere even discloses a request for scanning or how scanning of the channels is performed. Thus, the Spaur reference fails to disclose the requirements, *inter alia*, of claim 24 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

With respect to the Gwon reference, as stated above with respect to Independent Claim 14, the Gwon reference merely describes a procedure for minimizing L3 handoff latency using a pre-registration handoff method that allows the L3 handoff to begin even before the L2 handoff begins, as stated at column 2, lines 57 through 65. Thus, the Gwon reference nowhere discloses a request for scanning or how scanning of the channels is performed. As such, the Gwon

reference fails to disclose the requirements, *inter alia*, of claim 24 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: when the one of the datagrams is being received when the channel scan request is received, scan at least one other channel of the plurality of channels, but less than all of the plurality of channels; after scanning the at least one other channel, tune to the one of the plurality of channels to transmit at least one outbound datagram; and scanning at least another channel of the plurality of channels."

The combination of the references also fails to suggest the requirements of claim 24. As explained above, both the Spaur reference and the Gwon reference merely disclose handoff procedures and fail to even disclose the requirements of claim 24 as explained above.   In addition, there is no suggestion to revise the references to meet the requirements of claim 24 because neither reference discloses or realizes the problems addressed by the embodiments of the present invention that if a station is scanning other channels for a significant period of time (e.g., a few hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the multiplicative decrease congestion avoidance algorithm. As such, the combination of the reference fails to suggest the requirements of claim 24.

The dependent claims 25 through 28 add further patentable matter to Claim 24 and thus are further differentiated and patentable under 35 U.S.C. §103 over the Spaur reference in view of the Gwon reference.

Independent Claim 29 and dependent Claims 30 through 32

Neither the Spaur reference nor the Gwon reference disclose or suggest the requirements, *inter alia*, of claim 29 of, "memory operably coupled to the processing module, wherein the memory stores operational instructions that cause the processing module to: when a Transmission Control Protocol (TCP) connection is established between a source and a destination, receive a network interface protocol channel scan request; and when the network interface protocol channel scan request is received, hop between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency in acknowledging receipt of a datagram of the at least one datagrams or a portion of the datagram during scanning of the other channels of the WLAN."

With respect to the Spaur reference, as stated above with respect to Independent Claim 20, the Spaur reference discloses that no transfer of information occurs until the link scheduler 70 determines the identity of other network channels that are becoming available for selection, based on current location of the mobile unit and the anticipated change in location of the mobile unit, at column 13, lines 8 through 16. Thus, the Spaur reference discloses only determining whether to initiate transfer on one or more selected network channels or determining an identity of other network channels based on location of the mobile unit to transfer the particular information. This aspect of the Spaur reference actually teaches away from claim 29. The Spaur reference nowhere even discloses how scanning of other channels is performed or hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency. Thus, the Spaur reference fails to disclose the requirements, *inter alia*, of claim 29.

With respect to the Gwon reference, as stated above with respect to Independent Claim 14, the Gwon reference merely describes a procedure for minimizing L3 handoff latency using a pre-registration handoff method that allows the L3 handoff to begin even before the L2 handoff begins, as stated at column 2, lines 57 through 65. Thus, the Gwon reference nowhere discloses disclosing how scanning of other channels is performed or hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency. . As such, the Gwon reference fails to disclose the requirements of claim 29.

As explained above, the combination of the references also fails to suggest the requirements of claim 29. Both the Spaur reference and the Gwon reference merely disclose handoff procedures without disclosing how scanning of other channels is performed or hopping between a channel supporting the TCP connection within a wireless local area network (WLAN) and other channels of the WLAN to avoid excess latency. In addition, there is no suggestion to revise the references to meet the requirements of claim 29 because neither reference discloses or realizes the problems addressed by the embodiments of the present invention that if a station is scanning other channels for a significant period of time (e.g., a few hundred milliseconds), TCP/IP may view this absence of support as congestion and evoke the multiplicative decrease

congestion avoidance algorithm. As such, the combination of the reference fails to suggest the requirements of claim 29.

The dependent claims 30 through 32 add further patentable matter to Claim 29 and thus are further differentiated and patentable under 35 U.S.C. §103 over the Spaur reference in view of the Gwon reference.

CONCLUSION

For the above reasons, the foregoing response places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 240-5324.

Respectfully submitted,

GARLICK, HARRISON & MARKISON

Dated: <u>December 17, 2007</u>   /Jessica W. Smith/

Jessica W. Smith
Reg. No. 39,884

Garlick, Harrison & Markison
P.O. Box 160727
Austin, TX 78716-0727
Phone: (972) 240-5324
Fax: (469) 366-6731